

Claims:

1. A reloadable launcher for use with rocket-propelled projectiles, comprising:

an inner tube and an outer tube fixedly coupled to one another to define a concentric tube arrangement with at least one gas flow channel being defined therebetween, said inner tube being capable of supporting a launch of a rocket-propelled projectile therefrom wherein gases produced during the launch are directed toward and escape from a breech end of said inner tube while the projectile is propelled towards a muzzle end of said inner tube;

a ring fixedly coupled to a first end of said outer tube that is adjacent to said breech end of said inner tube, said ring defining a keyway and an annular channel between said keyway and said first end of said outer tube;

a cap having a concave inner surface, said cap terminating in a peripheral edge that defines a key shaped for passage through said keyway of said ring wherein, when said concave inner surface faces said breech end and said key is aligned with and moved axially through said keyway, said key resides in said annular channel adjacent said first end of said outer tube, said cap further having a central portion thereof that is aligned with a central longitudinal axis of said inner tube when said key resides in said annular

24 channel; and

25 a link hingedly coupled on one end thereof to said ring  
26 to permit said cap to be moved such that a projectile can be  
27 loaded into said inner tube from said breech end thereof,  
28 said link further being rotationally coupled to said cap at  
29 said central portion thereof such that said cap can be  
30 rotated about said central portion wherein, when said key  
31 resides in said annular channel and said cap is rotated about  
32 said central portion, said key is misaligned with said keyway  
33 wherein said cap is axially locked to said outer tube.

1 2. A reloadable launcher as in claim 1 wherein said keyway  
2 is defined by a plurality of spaced apart radially extending  
3 slots and said key is defined by a corresponding plurality of  
4 spaced apart radially extending projections sized and shaped  
5 for passage through said plurality of spaced apart radially  
6 extending slots.

1 3. A reloadable launcher as in claim 1 wherein an inner  
2 periphery of said outer tube at said first end thereof aligns  
3 with said cap when said key resides in said annular channel  
4 such that said inner periphery is contiguous with said  
5 concave inner surface of said cap.

1        4. A reloadable launcher as in claim 1 wherein said concave  
2        inner surface of said cap is semi-spherical.

1        5. A reloadable launcher as in claim 1 wherein said concave  
2        inner surface of said cap is hemispherical.

1        6.    A reloadable launcher for use with rocket-propelled  
2        projectiles, comprising:

3            a concentric canister launch tube arrangement having an  
4        inner tube fixedly coupled to an outer tube with open-ended  
5        gas flow ducts being defined therebetween and along the  
6        length thereof, said inner tube being capable of supporting a  
7        launch of a rocket-propelled projectile therefrom wherein  
8        gases produced during the launch are directed toward and  
9        escape from a breech end of said inner tube while the  
10       projectile is propelled towards a muzzle end of said inner  
11       tube;

12           a ring fixedly coupled to a first end of said outer  
13        tube that is aligned with said breech end of said inner tube,  
14        said ring extending axially from said outer tube, said ring  
15        defining a keyway and an annular channel between said keyway  
16        and said first end of said outer tube;

17           a hemispherical cap terminating in a peripheral edge  
18        that defines a key shaped for passage through said keyway of  
19        said ring wherein, when said key is aligned with and moved  
20        axially through said keyway, said key resides in said annular  
21        channel adjacent said first end of said outer tube; and

22           means for coupling said hemispherical cap to said ring  
23        to permit said hemispherical cap to be (i) moved such that a  
24        projectile can be loaded into said inner tube from said

25 breech end thereof, and (ii) rotated when said key resides in  
26 said annular channel to misalign said key and said keyway  
27 thereby axially locking said hemispherical cap to said outer  
28 tube, wherein said gases produced by the launch are re-  
29 directed by said hemispherical cap towards said open-ended  
30 gas flow ducts.

1 7. A reloadable launcher as in claim 6 wherein said keyway  
2 is defined by a plurality of spaced apart radially extending  
3 slots and said key is defined by a corresponding plurality of  
4 spaced apart radially extending projections sized and shaped  
5 for passage through said plurality of spaced apart radially  
6 extending slots.

1 8. A reloadable launcher as in claim 6 wherein an inner  
2 periphery of said outer tube at said first end thereof aligns  
3 with said hemispherical cap when said key resides in said  
4 annular channel such that said inner periphery is contiguous  
5 with said hemispherical cap.

1        9. A reloadable launcher for use in an arrayed arrangement  
2        of reloadable launchers where each said reloadable launcher  
3        is capable of firing a rocket-propelled projectile therefrom,  
4        each said reloadable launcher comprising:

5            a concentric canister launch tube arrangement having an  
6        inner tube fixedly coupled to an outer tube with open-ended  
7        gas flow ducts being defined therebetween and along the  
8        length thereof, said inner tube being capable of supporting a  
9        launch of a rocket-propelled projectile therefrom wherein  
10       gases produced during the launch are directed toward and  
11       escape from a breech end of said inner tube while the  
12       projectile is propelled towards a muzzle end of said inner  
13       tube;

14           a ring fixedly coupled to a first end of said outer  
15       tube that is aligned with said breech end of said inner tube,  
16       said ring extending axially from said outer tube, said ring  
17       having a keyway and an annular channel between said keyway  
18       and said first end of said outer tube, said ring further  
19       defining at least one support extending radially outward  
20       therefrom wherein said at least one support can be used as a  
21       point of coupling to another ring associated with an adjacent  
22       one of the reloadable launchers in the arrayed arrangement  
23       thereof;

24           a hemispherical cap terminating in a peripheral edge

25 that defines a key shaped for passage through said keyway of  
26 said ring wherein, when said key is aligned with and moved  
27 axially through said keyway, said key resides in said annular  
28 channel adjacent said first end of said outer tube; and

29 means for coupling said hemispherical cap to said ring  
30 to permit said hemispherical cap to be (i) moved such that a  
31 projectile can be loaded into said inner tube from said  
32 breech end thereof, and (ii) rotated when said key resides in  
33 said annular channel to misalign said key and said keyway  
34 thereby axially locking said hemispherical cap to said outer  
35 tube, wherein said gases produced by the launch are re-  
36 directed by said hemispherical cap towards said open-ended  
37 gas flow ducts.

1 10. A reloadable launcher as in claim 9 wherein said keyway  
2 is defined by a plurality of spaced apart radially extending  
3 slots and said key is defined by a corresponding plurality of  
4 spaced apart radially extending projections sized and shaped  
5 for passage through said plurality of spaced apart radially  
6 extending slots.

1 11. A reloadable launcher as in claim 9 wherein an inner  
2 periphery of said outer tube at said first end thereof aligns  
3 with said hemispherical cap when said key resides in said

4       annular channel such that said inner periphery is contiguous  
5       with said hemispherical cap.